

fore to reckon with the fact, that these appendages are not only organs of the tactile and olfactory sense but also of the sense of heat perception. It may be of interest in this connection that, at the moment of biting, the *Anopheles* mosquito will lift the two long palpi at right angles to the proboscis; these might be supposed to be the seat of heat-perception but according to Graber the function of the palpi is olfactory and this even to a higher degree than in the antennae.

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## The Spider of Saltair Beach (Arach., Aran.)

By RALPH V. CHAMBERLIN, Cambridge, Massachusetts.

About ten years ago the newspapers of Salt Lake City gave considerable space to accounts of what was characterized as "a plague of spiders" at the Saltair Beach resort, Great Salt Lake. At that time spiders were recorded as occurring

in countless numbers in and over all the buildings at the resort, stretching their webs on every available support. Each morning the attendants, armed with brooms, would endeavor to clear the webs and spiders from the dressing-rooms and other more used parts of the buildings; and each succeeding morning webs and spiders had reappeared as if by magic. The pavilion at this resort stands over the water on piles a considerable distance from shore; and the extensive spaces beneath the floor of the pavilion and on the piling in general harbored a seemingly inexhaustible supply of spiders which each night swarmed over the buildings, seeking unoccupied sites for their webs. For a year or two the plan of gathering and destroying the cocoons late in the season was tried in an effort to rid the place of the pest. Cocoons by the bushel were gathered by the attendants working systematically in and about the building and from boats beneath the pavilion. This is said to have relieved the situation. Evidently, however, the efforts were later abandoned; for, upon visiting the beach in 1918 and again in 1919, I found the spiders holding undisputed sway in their wonted places, they and their webs occurring everywhere. People have apparently become used to the sight and correspondingly tolerant of these feared but inoffensive creatures.

It is popularly believed that several kinds of spiders occur at Saltair, but I observed only one. Of this I collected several hundred specimens. In this species the males, as often, are formed differently from the females, are of a much lighter color, and would, by the layman, naturally be regarded as a distinct kind. The light abdominal markings, normally yellowish in color, are not uncommonly bright red, particularly in the males, giving thus the "red spider," commonly accounted as a third kind, which an employee at the beach assured me was especially dangerous!

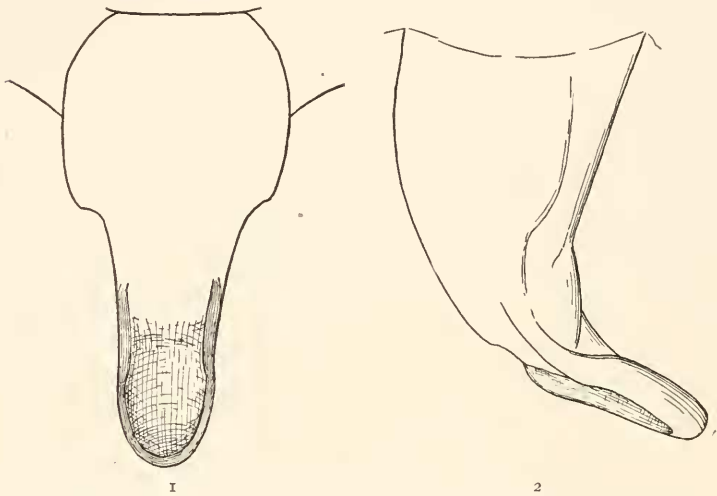
The spider is one of the orb-web weavers (Argiopidae), and belongs to the genus *Neoscona*, commonly included in *Aranea*. the *Epeira* of most earlier writers. In *Neoscona* it falls in the group in which the males have the coxae of the fourth legs armed beneath with a conical process. Hereto-

fore this group was known to include but two, or perhaps three, American species, namely *oaxacensis* (Keyserling) of Mexico and Central America and *vertebrata* (McCook) of the southwestern United States. In the *Biologia Centrali-Americana* F. O. Picard-Cambridge describes a species *conifera* from Mexico and Central America, and places *vertebrata* in synonymy with *oaxacensis*; but a study of material from the type locality of *vertebrata* (San Diego, California) and elsewhere in the southwest shows that *vertebrata* agrees in all details except in size with *conifera* as described by the author mentioned, and differs correspondingly from *oaxacensis*. *Conifera* is thus probably a synonym of *vertebrata*. The Saltair Beach spider is close in general structure to these forms; but it is an obviously distinct species, and one which seems never to have been named. It is a much more darkly colored species than *vertebrata*, with relatively longer legs, and differs in structural details as indicated in the description below. Thus far it has not been taken anywhere excepting at the Saltair Beach. The types of this species are in the collection of the Museum of Comparative Zoology, Cambridge, Massachusetts.

***Neoscona salaeria* sp. nov.**

♀.—Adult females in full color have the integument of carapace and legs from mahogany to black, without any distinct markings. Sternum black with a narrow median longitudinal stripe of yellow. Labium and endites black with anterior and mesal borders, respectively, pale. The carapace and sternum clothed with gray hair, the legs with gray and brown hairs. Abdomen in general blackish, showing above a narrow median longitudinal stripe, much as in *oaxacensis*, formed by numerous small yellow dots but with no spots or marks of yellow as large as those occurring in *vertebrata* or *oaxacensis*; on the lateral parts of the dorsum, especially anteriorly, similar small yellow dots may occur in varying numbers, the median stripe sometimes dissolving in a larger anterior area formed by such dots. Very often the dorsal yellow markings are almost wholly obliterated. Venter with four yellow spots, two just caudad of the epigastric furrow and two in front of the spinnerets. Abdomen clothed with shorter gray hairs and longer, more sparse setae of brownish color. Younger and freshly molted females are light colored, with distinct markings like those of the males, a similar red color often showing on the abdomen.

Abdomen elongate oval. Femora of legs armed beneath with two widely-separated series of spines, the spines of these series on the anterior legs shorter and more slender than those of the anterior and caudal surfaces, and the spines of the anterior row more numerous than those of the caudal. Scape of epigynum geniculate at the beginning of the distal "spoon," the proximal division long, in profile a little curved, much as in *vertebrata*. In ventral view the scape is seen to be narrow, not at all or but weakly clavately expanding, not conspicuously so as it does in the other species, and it does not show the lateral lobes or tubercles at the sides of the main process. See figs. 1 and 2.



*Neoscona salaeria* sp. nov. ♀

Fig. 1. Ventral view, and Fig. 2. Lateral view of epigynum. (Setae not represented.)

♂.—In general obviously lighter in color than the female. Carapace fulvous to brown, with a median longitudinal line and a broader band above the lateral border on each side from chocolate-colored to black. Sternum as in the female. Legs fulvous or brown, each tibia with a broad black annulus at each end and the metatarsus with a narrow annulus at proximal end and a broader and more distinct one near middle and at distal end, of which commonly only the distal one is distinct. Tarsi darker distally. Legs darkening and the annulations becoming more obscure in older specimens, and brighter and more strongly marked in newly-molted ones. Abdomen with the same coloration as in the female but the yellow pattern typically more strongly developed. Often the light markings of the dorsum of the abdomen are bright red in whole or in part instead of yellow. The yellow spots on the venter often connected along each side.

Ventral spines of femora of legs more strongly developed than in the female. Tibia of second legs beneath with the usual two stout basal spines, with no group of smaller ones distad of them such as found in *oaxacensis*; on the anterior face a double and in part triple series of short stout spines which are typically from thirty to forty in number. Coxae of fourth legs each with a prominent conical apophysis beneath. Coxae of first legs with the usual chitinous hook. The median apophysis (clavis) of the bulb of the male palpus formed almost exactly as in *vertebrata*, the larger lobe not expanded at all distally.

♂.—Length to 14 mm. Length of cephalothorax 7 mm.; width 6 mm. Length of tib. + pat. I, 11 mm.; of tib. + pat. IV 9.2 mm.

♀.—Length to 15 mm. Length of cephalothorax 7.4 mm.; width 6.2 mm. Length of tib. + pat. I 10.5 mm.; of tib. + pat. IV 10 mm.

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### Notes on *Gonatopus ombrodes*, a Parasite of Jassids (Hymen., Homop.)\*

By C. N. AINSLIE, U. S. Bureau of Entomology.

On July 10, 1910, in Fort Collins, Colorado, a jassid, a female *Cicadula 6-notata*, flew to a lamp by which the writer was seated and attracted attention by her peculiar behavior. She seemed deformed, walked jerkily and was continually flipping her wings. A lens disclosed a small striped sac projecting from or attached to the abdomen between the fourth and fifth segments. This jassid was captured and mounted in balsam for future study.

Since that date a number of leaf hoppers afflicted in a similar manner have been taken in various parts of the middle west and a few adult parasites have been reared from these. The object of the present paper is to offer some facts that have been gathered regarding the habits of these parasites.

The writer is indebted to Mr. S. A. Rohwer, a systematist of the Bureau of Entomology, for a determination of the parasite and for helpful criticisms of this paper, and to Mr. D. M. DeLong of Harrisburg, Pennsylvania, who kindly determined the jassid hosts concerned in this study.

It may be said at the outset that while this parasite may possibly attack jassids more or less promiscuously, regard-

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